

In the Claims

The status of claims in the case is as follows:

- 1 1. [Currently amended] A method for control and
2 management of communication traffic, comprising the steps
3 of:

4 expressing access rules as filters referencing system
5 kernel data;

6 for outbound processing, determining source application
7 indicia;

8 for inbound packet processing, executing a look-ahead
9 function to determine target application indicia; said
10 look-ahead function being executed within a protocol
11 stack including an IP layer, a transport layer, a
12 sockets layer, and an application layer and which, for
13 said inbound packet, said IP layer provides to said
14 transport layer said inbound packet, marked as non-
15 deliverable, and receives back from said transport
16 layer indicia, provided to said transport layer by said
17 sockets layer, identifying the application layer
18 application to which said packet would have been
19 delivered; and

20 responsive to said source or target application
21 indicia, executing filter processing; said filter
22 processing including constructing and evaluating
23 logical expressions of arbitrary length, and

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24 selectively using a set of logical operators,
 25 alternative filter selector fields, and value set.

1 2. [Original] The method of claim 1, further comprising
 2 the steps of executing said determining and executing steps
 3 within a kernel filtering function upon encountering a
 4 filter selector field referencing kernel data not included
 5 in said packet.

1 3. [Original] The method of claim 1, said filter
 2 processing including the steps of:

3 determining a task or thread identifier;

4 based on said task or thread identifier, determining a
 5 process or job identifier; and

6 based on said process or job identifier, determining
 7 job or process attributes for filter processing.

1 4. [Original] The method of claim 1, said filter
 2 processing including the steps of:

3 determining a user identifier; and

4 based on said user identifier, determining user
 5 attributes for filter processing.

1 5. [Original] The method of claim 3, further comprising
 2 the step of determining from said task identifier a work
 3 control block containing said process or job identifier.

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1 6. [Canceled]

2 7. [Canceled]

1 8. [Original] The method of claim 1, further comprising
2 the steps of:

3 delivering to said filters infrastructure access rules
4 for defining security context.

1 9. [Original] The method of claim 8, said infrastructure
2 including logging, auditing, and filter rule load controls.

1 10. [Currently amended] A method for control and
2 management of aspects of communication traffic within
3 filtering, comprising the steps of:

4 receiving IP packet data into a TCP/IP protocol stack
5 executing within a system kernel;

6 for an inbound IP packet, executing a look-ahead
7 function within a protocol stack including an IP layer,
8 a transport layer, a sockets layer, and an application
9 layer and which, for said IP inbound packet, said IP
10 layer provides to said transport layer said inbound IP
11 packet, marked as non-deliverable, and receives back
12 from said transport layer indicia, provided to said
13 transport layer by said sockets layer, identifying the
14 application layer application to which said packet
15 would have been delivered; and

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16 executing filtering code within said system kernel with
17 respect to non-IP packet data accessed within said
18 system kernel outside of said TCP/IP protocol stack;
19 said filtering code constructing and evaluating logical
20 expressions of arbitrary length, and selectively using
21 a set of logical operators, alternative filter selector
22 fields, and value set.

1 11. [Original] The method of claim 10, said non-IP packet
2 data including context data regarding said IP packet.

1 12. [Original] The method of claim 10, said non-IP packet
2 data including data specific to a task generating said non-
3 IP packet data.

1 13. [Original] The method of claim 10, said non-IP packet
2 data including data specific to a task that will receive
3 said IP packet.

1 14. [Original] The method of claim 11, said context data
2 including packet arrival interface indicia.

1 15. [Canceled]

2 16. [Canceled]

3 17. [Original]

4 18. [Currently amended] A method for centralizing system-
5 wide communication management and control within filter
6 rules, comprising the steps of:

7 providing filter statements syntax for accepting
8 parameters in the form of a selector, each selector

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9 specifying selector field, operator, and a set of
10 values; [[and]]

11 for an inbound packet, executing a look-ahead function
12 within a protocol stack including an IP layer, a
13 transport layer, a sockets layer, and an application
14 layer and which, for said inbound packet, said IP layer
15 provides to said transport layer said inbound packet,
16 marked as non-deliverable, and receives back from said
17 transport layer indicia, provided to said transport
18 layer by said sockets layer, identifying the
19 application layer application to which said packet
20 would have been delivered by said sockets layer;

21 said selector referencing data that does not exist in
22 IP packets;

23 processing said filter statements, including
24 constructing and evaluating logical expressions of
25 arbitrary length, and selectively using a set of
26 logical operators, alternative filter selector fields,
27 and value set.

1 19. [Original] The method of claim 18, said parameters
2 selectively including userid, user profile, user class, user
3 group, user group authority, user special authority, job
4 name, process name, job group, job class, job priority,
5 other job or process attributes, and date & time.

1 20. [Original] The method of claim 18, said filters
2 statements being provided within a user interface to said
3 system.

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1 21. [Original] The method of claim 18, further comprising
2 the steps of:

3 establishing a tunnel between two IP address limiting
4 traffic to applications bound to ports at each end of
5 said tunnel;

6 said filtering code accessing filtering attributes
7 further limiting traffic selectively to job indicia;
8 and

9 operating said filtering code within a kernel filtering
10 function upon encountering a filter selector field
11 referencing kernel data not included in said traffic.

1 22. [Currently amended] A method for traversing a portion
2 only of a protocol stack to disallow selective IP packet
3 traffic, comprising the steps of:

4 receiving a packet in the kernel of the operating
5 system of a first node from an application, said kernel
6 including a filter processor; said filter processor for
7 constructing and evaluating logical expressions of
8 arbitrary length, said logical expressions selectively
9 including a set of logical operators, alternative
10 filter selector fields, and value set;

11 for inbound packet processing to a first node from a
12 second node, executing a look-ahead function in the
13 system kernel of said first node to determining

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14 determine a target application; said system kernel
15 including a protocol stack including an IP layer, a
16 transport layer, a sockets layer, and an application
17 layer and which, for said inbound packet, said IP layer
18 provides to said transport layer said inbound packet,
19 marked as non-deliverable, and receives back from said
20 transport layer indicia identifying the application
21 layer application to which said packet would have been
22 delivered;

23 for both said inbound packet processing, and for
24 outbound packet processing from said first node to said
25 second node, executing within said kernel the steps of

26 processing said packet by determining a task ID;

27 responsive to said task ID, determining a
28 corresponding work control block;

29 determining a user ID, process or job identifier
30 from said work control block;

31 from the user ID, process or job identifier
32 selectively determining attributes for said user
33 process or job; and

34 passing said attributes to said filter processor
35 for managing and controlling communication
36 traffic.

1 23. [Currently amended] A method for expressing access
2 rules as filters, comprising the steps of:

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3 providing a filter statements syntax for accepting
4 parameters in the form of a selector, each selector
5 specifying selector field, operator, and a set of
6 values; and

7 said selector referencing data that does not exist in
8 IP packets for controlling access to an application;

9 for an inbound IP packet, executing a look-ahead
10 function within a protocol stack including an IP layer,
11 a transport layer, a sockets layer, and an application
12 layer and which, for said IP inbound packet, said IP
13 layer provides to said transport layer said inbound IP
14 packet, marked as non-deliverable, and receives back
15 from said transport layer indicia, provided to said
16 transport layer by said sockets layer, identifying the
17 application layer application to which said packet
18 would have been delivered; and

19 processing said filter statements by constructing and
20 evaluating logical expressions of arbitrary length,
21 said logical expressions selectively including a set of
22 logical operators, alternative filter selector fields,
23 and value set referencing said application layer
24 application.

1 24. [Currently amended] A method for managing and
2 controlling communication traffic by centralizing access
3 rules in filters executing within and referencing data
4 available in system kernels, comprising the steps for
5 outbound packet processing from a first node to a second
6 node of:

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7 receiving said packet in the kernel of the operating
8 system of said first node from an application or
9 process at said first node;

10 processing said packet by determining a task ID;

11 responsive to said task ID, determining a corresponding
12 work control block;

13 responsive to said work control block, determining a
14 process or job identifier;

15 responsive to said process or job identifier,
16 determining job or process attributes; and

17 executing said filters by constructing and evaluating
18 logical expressions of arbitrary length, said logical
19 expressions selectively including a set of logical
20 operators, alternative filter selector fields, and
21 value set.

1 25. [Currently amended] The method of claim 24, further
2 comprising the steps for inbound packet processing from said
3 second node to said first node of:

4 initially operating said kernel at said first node to
5 determine a target application for said packet at said
6 first node by executing a look-ahead function within a
7 protocol stack including an IP layer, a transport
8 layer, a sockets layer, and an application layer and
9 which, for said inbound packet, said IP layer provides
10 to said transport layer said inbound packet, marked as

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11 non-deliverable, and receives back from said transport
 12 layer indicia, provided to said transport layer by said
 13 sockets layer, identifying the application layer
 14 application to which said packet would have been
 15 delivered;.

26. [Canceled]

1 27. [Canceled]

2 28. [Canceled]

1 29. [Currently amended] A method for managing and
 2 controlling communication traffic by centralizing the access
 3 rules, comprising the steps for outbound packet processing
 4 from a first node to a second node of:

5 receiving said packet in the kernel of the operating
 6 system of said first node from an application or
 7 process at said first node, said kernel including a
 8 filter processor for constructing and evaluating
 9 logical expressions of arbitrary length, said logical
 10 expressions selectively including a set of logical
 11 operators, alternative filter selector fields, and
 12 value set;

13 processing said packet by determining a task ID;

14 responsive to said task ID, determining a corresponding
 15 work control block;

16 determining a user ID control block from said work
 17 control block;

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18 from the user ID control block determining attributes
19 for said user; and

20 passing said attributes to said filter processor for
21 managing and controlling communication traffic.

1 30. [Currently amended] The method of claim 29, further
2 comprising the steps for inbound packet processing from said
3 second node to said first node of:

4 initially operating said kernel at said first node to
5 determine a target application for said packet at said
6 first node by executing a look-ahead function within a
7 protocol stack including an IP layer, a transport
8 layer, a sockets layer, and an application layer and
9 which, for said inbound packet, said IP layer provides
10 to said transport layer said inbound packet, marked as
11 non-deliverable, and receives back from said transport
12 layer indicia, provided to said transport layer by said
13 sockets layer, identifying the application layer
14 application to which said packet would have been
15 delivered.

1 31. [Canceled]

2 32. [Canceled]

3 33. [Canceled]

1 34. [Currently amended] A method for control and
2 management of communication traffic with respect to a system
3 node, comprising the steps of:

4 receiving at said system node an inbound packet; and

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5 executing within a protocol stack of the system kernel
6 of said system node a filtering function identifying
7 for said inbound packet a filter referencing non-packet
8 data, and constructing and evaluating logical
9 expressions of arbitrary length, said logical
10 expressions selectively including a set of logical
11 operators, alternative filter selector fields, and
12 value set; and

13 responsive to said filter, executing a look-ahead
14 function for identifying a target application for said
15 inbound packet; said look-ahead function executed
16 within a protocol stack including an IP layer, a
17 transport layer, a sockets layer, and an application
18 layer and which, for said IP inbound packet, said IP
19 layer provides to said transport layer said inbound
20 packet, marked as non-deliverable, and receives back
21 from said transport layer indicia, provided to said
22 transport layer by said sockets layer, identifying the
23 application layer application to which said packet
24 would have been delivered;.

1 35. [Original] The look-ahead function of the method of
2 claim 34 further comprising the steps of:

3 passing to a transport layer function identified by an
4 IP header a packet marked non-deliverable for
5 determining which user-level process or job is to
6 receive said packet;

7 receiving from said transport layer an application
8 layer task identifier for said user-level process or

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9 job; and thereafter

10 passing said packet marked by said task identifier to
11 said transport layer for delivery to said application
12 layer task.

1 36. [Currently amended] System for control and management
2 of communication traffic, comprising:

3 a system kernel including a filter function and stack
4 data;

5 said filter function including a filter selectively
6 referencing said stack data for expressing access
7 rules;

8 said filter function being responsive to receipt of an
9 outbound packet for determining a source application;

10 said filter function being responsive to receipt of an
11 inbound packet processing for executing a look-ahead
12 function within a protocol stack to determine a target
13 application; said protocol stack including an IP layer,
14 a transport layer, a sockets layer, and an application
15 layer and which, for said inbound packet, said IP layer
16 provides to said transport layer said inbound packet,
17 marked as non-deliverable, and receives back from said
18 transport layer indicia, provided to said transport
19 layer by said sockets layer, identifying the
20 application layer application to which said packet
21 would have been delivered; and

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22 said filter function being responsive to said source or
23 target application for executing filter processing
24 including constructing and evaluating logical
25 expressions of arbitrary length, said logical
26 expressions selectively including a set of logical
27 operators, alternative filter selector fields, and
28 value set.

1 37. [Currently amended] A system for control and
2 management of aspects of communication traffic within
3 filtering, comprising:

4 a system kernel;

5 a protocol stack including an IP layer, a transport
6 layer, a sockets layer, and an application layer for
7 executing within said system kernel, responsive to an
8 inbound IP packet, a look-ahead function by which said
9 IP layer provides to said transport layer said inbound
10 IP packet, marked as non-deliverable, and receives back
11 from said transport layer indicia, provided to said
12 transport layer by said sockets layer, identifying the
13 application layer application to which said packet
14 would have been delivered; and

15 filtering code within said system kernel operable with
16 respect to non-IP packet data accessed within said
17 system kernel outside of said protocol stack for
18 controlling and managing said aspects of communication
19 traffic; said filter code for constructing and
20 evaluating logical expressions of arbitrary length,
21 said logical expressions selectively including a set of

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22 logical operators, alternative filter selector fields,
23 and value set.

1 38. [Currently amended] A system for centralizing system-
2 wide communication management and control within filter
3 rules, comprising:

4 filter statements having a syntax for accepting
5 parameters in the form of a selector, each selector
6 specifying selector field, operator, and a set of
7 values; [[and]]

8 said selector referencing data that does not exist in
9 IP packets;

10 a look-ahead function within a protocol stack including
11 an IP layer, a transport layer, a sockets layer, and an
12 application layer which, for an inbound packet, said IP
13 layer provides to said transport layer said inbound
14 packet, marked as non-deliverable, and receives back
15 from said transport layer indicia, provided to said
16 transport layer by said sockets layer, for identifying
17 the application layer application to which said packet
18 would have been delivered; and

19 a filter processor for constructing and evaluating
20 filter statements including logical expressions of
21 arbitrary length, said logical expressions selectively
22 including a set of logical operators, alternative
23 filter selector fields, and value set.

1 39. [Currently amended] A system for traversing a portion

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2 only of a protocol stack to disallow selective IP packet
3 traffic, comprising:

4 a system kernel;

5 a filter processor executing within said system kernel
6 for constructing and evaluating logical expressions of
7 arbitrary length, said logical expressions selectively
8 including a set of logical operators, alternative
9 filter selector fields, and value set;

10 said filter processor responsive to an inbound packet
11 for executing a look-ahead function for determining a
12 target application; said look-ahead function operating
13 within a protocol stack including an IP layer, a
14 transport layer, a sockets layer, and an application
15 layer and which, for said IP inbound packet, said IP
16 layer provides to said transport layer said inbound IP
17 packet, marked as non-deliverable, and receives back
18 from said transport layer indicia, provided to said
19 transport layer by said sockets layer, identifying the
20 application layer application to which said packet
21 would have been delivered;

22 said filter processor responsive to both inbound and
23 outbound packets for

24 processing said packet by determining a task ID;

25 responsive to said task ID, determining a
26 corresponding work control block;

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27 determining a user ID, process or job identifier
28 from said work control block;

29 from the user ID, process or job identifier
30 selectively determining attributes for said user
31 process or job; and

32 passing said attributes to said filter processor
33 for managing and controlling communication
34 traffic.

1 40. [Currently amended] A system for expressing access
2 rules as filters, comprising:

3 [[a]] filter statements for accepting parameters in the
4 form of a selector, each selector specifying selector
5 field, operator, and a set of values; [[and]]

6 said selector referencing data that does not exist in
7 IP packets for controlling access to an application;

8 a look-ahead function executing within a protocol stack
9 including an IP layer, a transport layer, a sockets
10 layer, and an application layer and which, for an
11 inbound packet, said IP layer provides to said
12 transport layer said inbound packet, marked as non-
13 deliverable, and receives back from said transport
14 layer indicia, provided to said transport layer by said
15 sockets layer, identifying the application layer
16 application to which said packet would have been
17 delivered; and

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18 a filter processor for constructing and evaluating said
19 filter statements as logical expressions of arbitrary
20 length, each said logical expression selectively
21 including said operator selected from a set of logical
22 operators, alternative filter selector fields, and
23 value set.

1 41. [Currently amended] A system for managing and
2 controlling communication traffic by centralizing access
3 rules in filters executing within and referencing data
4 available in system kernels, comprising:

5 a computer readable medium;

6 first code for receiving a packet in the kernel of the
7 operating system of a first node from an application or
8 process at said first node; said kernel responsive to
9 an inbound packet, for executing a look-ahead function
10 within a protocol stack including an IP layer, a
11 transport layer, a sockets layer, and an application
12 layer and which, for said inbound packet, said IP layer
13 provides to said transport layer said inbound IP
14 packet, marked as non-deliverable, and receives back
15 from said transport layer indicia, provided to said
16 transport layer by said sockets layer, identifying the
17 application layer application to which said packet
18 would have been delivered;

19 second code for processing said packet by determining a
20 task ID;

21 third code responsive to said task ID for determining a

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22 corresponding work control block;

23 fourth code responsive to said work control block for

24 determining a process or job identifier; [[and]]

25 fifth code responsive to said process or job identifier

26 for determining job or process attributes;

27 sixth code for executing said filters by constructing

28 and evaluating logical expressions of arbitrary length,

29 said logical expressions selectively including a set of

30 logical operators, alternative filter selector fields,

31 and value set; and wherein

32 said first, second, third, fourth, fifth, and sixth

33 code is recorded on said computer readable medium.

1 42. [Canceled]

2 43. [Currently amended] A system for control and

3 management of communication traffic with respect to a system

4 node, comprising:

5 a filtering function executing within a protocol stack

6 of the system kernel of said system node identifying

7 for an inbound packet a filter referencing non-packet

8 data; and

9 a look-ahead function responsive to said filter for

10 identifying a target application for said inbound

11 packet; said look-ahead function functioning within a

12 protocol stack including an IP layer, a transport

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13 layer, a sockets layer, and an application layer and
14 which, for said inbound packet, said IP layer provides
15 to said transport layer said inbound packet, marked as
16 non-deliverable, and receives back from said transport
17 layer indicia, provided to said transport layer by said
18 sockets layer, identifying the application layer
19 application to which said packet would have been
20 delivered;; and

21 a filter processor for constructing and evaluating
22 logical expressions of arbitrary length, said logical
23 expressions selectively including a set of logical
24 operators, alternative filter selector fields, and
25 value set.

44. [Canceled]

1 45. [Currently amended] A computer program product for
2 control and management of aspects of communication traffic
3 within filtering, said computer program product comprising:

4 a computer readable medium;

5 first program instructions to receive IP packet data
6 into a TCP/IP protocol stack executing within a system
7 kernel including, for processing an inbound IP packet,
8 a look-ahead function within a protocol stack including
9 an IP layer, a transport layer, a sockets layer, and an
10 application layer and which, for said IP inbound
11 packet, said IP layer provides to said transport layer
12 said inbound IP packet, marked as non-deliverable, and
13 receives back from said transport layer indicia,

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14 provided to said transport layer by said sockets layer,
15 identifying the application layer application to which
16 said packet would have been delivered; [[and]]

17 second program instructions to execute filtering code
18 within said system kernel with respect to non-IP packet
19 data accessed within said system kernel outside of said
20 TCP/IP protocol stack by constructing and evaluating
21 logical expressions of arbitrary length, said logical
22 expressions selectively including a set of logical
23 operators, alternative filter selector fields, and
24 value set; and wherein

25 said first and second program instructions are recorded
26 on said medium.

1 46. [Currently amended] A [[a]] computer program product
2 for centralizing system-wide communication management and
3 control within filter rules, said computer program product
4 comprising:

5 a computer readable medium;

6 first program instructions to execute filter statements
7 having a syntax for accepting parameters in the form of
8 a selector, each selector specifying selector field, a
9 logical operator selected from a set of a plurality of
10 logical operators, and a set of values; and

11 second program instructions to cause said selector to
12 reference data that does not exist in IP packets, said
13 data including application layer indicia obtained for

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14 an incoming packet by a look-ahead function; said look-
15 ahead function executing within a protocol stack
16 including an IP layer, a transport layer, a sockets
17 layer, and an application layer and which, for said IP
18 inbound packet, said IP layer provides to said
19 transport layer said inbound IP packet, marked as non-
20 deliverable, and receives back from said transport
21 layer indicia, provided to said transport layer by said
22 sockets layer, identifying the application layer
23 application to which said packet would have been
24 delivered; and wherein

25 said first and second program instructions are recorded
26 on said medium.

1 47. [Currently amended] A [[a]] computer program product
2 for managing and controlling communication traffic by
3 centralizing access rules in filters executing within and
4 referencing data available in system kernels, said computer
5 program product comprising:

6 a computer readable medium;

7 first program instructions to receive said packet in
8 the kernel of the operating system of said first node
9 from a process at said first node;

10 second program instructions to process said packet by
11 determining a task ID;

12 third program instructions, responsive to said task ID,
13 to determine a corresponding work control block;

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14 fourth program instructions, responsive to said work
15 control block, to determine a process or job
16 identifier; [[and]]

17 fifth program instructions, responsive to said process
18 or job identifier, to determine job or process
19 attributes; and

20 sixth program instructions to execute a filter
21 processor for constructing and evaluating logical
22 expressions of arbitrary length, said logical
23 expressions selectively including a set of logical
24 operators, alternative filter selector fields, and
25 value set; and wherein

26 said first, second, third, fourth, and fifth fifth, and
27 sixth program instructions are recorded on said medium.

1 48. [Previously presented] The computer program product of
2 claim 47, said computer program product further comprising
3 for inbound packet processing from said second node to said
4 first node:

5 sixth program instructions to initially operate said
6 kernel at said first node to determine a target
7 application for said packet at said first node by
8 executing a look-ahead function within a protocol stack
9 including an IP layer, a transport layer, a sockets
10 layer, and an application layer and which, for said IP
11 inbound packet, said IP layer provides to said
12 transport layer said inbound IP packet, marked as non-
13 deliverable, and receives back from said transport

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14 layer indicia, provided to said transport layer by said
15 sockets layer, identifying the application layer
16 application to which said packet would have been
17 delivered;; and wherein

18 said sixth program instructions are recorded on said
19 medium.

1 49. [Currently amended] A computer program product or
2 ~~computer program element~~ for control and management of
3 communication traffic, ~~according to the steps~~ comprising:

4 a computer readable medium;

5 first program instructions for expressing access rules
6 as filters referencing system kernel data;

7 second program instructions, for outbound processing,
8 for determining a source application;

9 third program instructions, for inbound packet
10 processing, for executing a look-ahead function to
11 determine a target application; said look-ahead
12 function operating within a protocol stack including an
13 IP layer, a transport layer, a sockets layer, and an
14 application layer and which, for said IP inbound
15 packet, said IP layer provides to said transport layer
16 said inbound IP packet, marked as non-deliverable, and
17 receives back from said transport layer indicia,
18 provided to said transport layer by said sockets layer,
19 identifying the application layer application to which
20 said packet would have been delivered; [[and]]

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21 fourth program instructions, selectively responsive to
22 said source ~~or target~~ and target application, for
23 executing filter processing including constructing and
24 evaluating logical expressions of arbitrary length,
25 said logical expressions selectively including a set of
26 logical operators, alternative filter selector fields,
27 and value set;; and wherein

28 said first, second, third, and fourth program
29 instructions are recorded on said computer readable
30 medium.

1 50. [Currently amended] A computer program product or
2 ~~computer program element~~ for control and management of
3 aspects of communication traffic within filtering, according
4 to ~~steps~~ comprising:

5 a computer readable medium:

6 first program instructions for receiving IP packet data
7 into a TCP/IP protocol stack executing within a system
8 kernel;

9 second program instructions for executing filtering
10 code within said system kernel with respect to non-IP
11 packet data accessed within said system kernel outside
12 of said TCP/IP protocol stack; said filtering code
13 constructing and evaluating logical expressions of
14 arbitrary length, said logical expressions selectively
15 including a set of logical operators, alternative
16 filter selector fields, and value set; and wherein

17 said first and second program instructions are recorded
18 on said computer readable medium.

1 51. [Currently amended] A ~~computer program product or~~
2 computer program element for centralizing system-wide
3 communication management and control within filter rules,
4 ~~according to method steps comprising:~~

5 a computer readable medium:

6 first program instructions for providing filter
7 statements syntax for accepting parameters in the form
8 of a selector, each selector specifying selector field,
9 a logical operator, and a set of values,

10 second program instructions for executing filtering by
11 constructing and evaluating logical expressions of
12 arbitrary length, said logical expressions selectively
13 including said logical operator selected from a set of
14 logical operators, at least one said selector field,
15 and at least one said value; [[and]]

16 said selector referencing data that does not exist in
17 IP packets including data obtained, for an inbound IP
18 packet, by executing a look-ahead function within a
19 protocol stack including an IP layer, a transport
20 layer, a sockets layer, and an application layer and
21 which, for said IP inbound packet, said IP layer
22 provides to said transport layer said inbound IP
23 packet, marked as non-deliverable, and receives back
24 from said transport layer indicia, provided to said
25 transport layer by said sockets layer, identifying the

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26 application layer application to which said packet
27 would have been delivered;; and wherein

28 said first and second program instructions are recorded
29 on said computer readable medium.

1 52. [Currently amended] A computer program product or
2 ~~computer program element~~ for managing and controlling
3 communication traffic by centralizing access rules in
4 filters executing within, and referencing data available in,
5 system kernels, ~~according to method steps~~ comprising:

6 a computer readable medium:

7 first program instructions for receiving said packet in
8 the kernel of the operating system of said first node
9 from an application or process at said first node;

10 second program instructions for processing said packet
11 by determining a task ID;

12 third program instructions, responsive to said task ID,
13 for determining a corresponding work control block;

14 fourth program instructions, responsive to said work
15 control block, for determining a process or job
16 identifier;

17 fifth program instructions, responsive to said process
18 or job identifier, for determining job or process
19 attributes;

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20 sixth program instructions for executing a filter
21 processor for constructing and evaluating logical
22 expressions of arbitrary length, said logical
23 expressions selectively including a set of logical
24 operators, alternative filter selector fields, and
25 value set; and wherein

26 said first, second, third, fourth, fifth, and sixth
27 program instructions are recorded on said computer
28 readable medium.

1 53. [Currently amended] The computer program product or
2 ~~element of claim 52, said method steps~~ further comprising
3 for inbound packet processing from said second node to said
4 first node:

5 seventh program instructions initially operating said
6 kernel at said first node to determine a target
7 application for said packet at said first node by
8 executing a look-ahead function within a protocol stack
9 including an IP layer, a transport layer, a sockets
10 layer, and an application layer and which, for said IP
11 inbound packet, said IP layer provides to said
12 transport layer said inbound IP packet, marked as non-
13 deliverable, and receives back from said transport
14 layer indicia, provided to said transport layer by said
15 sockets layer, identifying the application layer
16 application to which said packet would have been
17 delivered;; and wherein

18 said seventh program instructions are recorded on said
19 computer readable medium.

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